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AND ADHESIVE TYPE STORAGE BATTERY  
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**ABSTRACT:**

**PROBLEM TO BE SOLVED:** To provide a battery jar cover for an adhesive type storage battery where each long negative electrode strap or each long positive electrode strap to which lugs are welded by means of a COS casting mold, can be housed in packets formed in the back face without folding inside a lug at the outer-most end of a group of lugs for the pole plates of one polarity, which are more by one pole plate than the pole plates of the other polarity, out of a group of the pole plates provided in the inside of the battery jar, and also without increasing in dimension the outer diameter of the box type battery jar, and also provide an adhesive type battery excellent in long life.

**SOLUTION:** In this battery, a plurality of packets 5 in which adhesive agent is filled, and each negative and each positive electrode strap are housed, are partitioned so as to be formed by the circumferential side wall of a box type battery jar cover 1, a center partitioning wall 3 which is projected out of the back face of the battery jar cover 1, and partitions an inner space, and by cross sectional partitioning walls 4 which are perpendicularly intersected with the center partitioning wall 3. And a place where each pocket is located, the center partitioning wall part 3a and circumferential side wall parts 2a which are perpendicularly intersected with the longer directions of the negative electrode straps and the positive electrode straps, that are housed in the pockets 5, so as to be faced to each other, are made thinner in thickness than the other center partitioning wall parts 3a and the other circumferential side wall part 2b which are not faced to each other.

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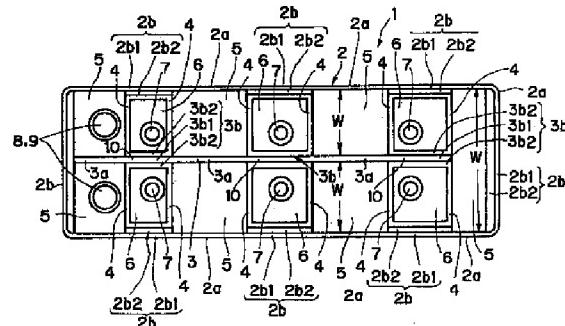
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(54)【発明の名称】 接着式蓄電池用電槽蓋並びに接着式蓄電池

(57)【要約】

【課題】 壁型電槽蓋の外径寸法を増大することなく、その裏面に形成したポケット内に、電槽内に設けた極板群の一方の極性の極板が他方の極性の極板より一枚多い極板の耳群の最外端の耳を内側に折り曲げることなしに、これらの耳をCOS鉄型で溶接した長手の陰極又は陽極ストラップを収容し得る接着式蓄電池用電槽蓋を提供し、良好な長寿命の接着式蓄電池の提供を可能にする。

【解決手段】 壁型電槽蓋1の周側壁2とその電槽蓋1の裏面から突出し内部空間を仕切る中央仕切壁3と該中央仕切壁に対し直交する横断仕切壁4により、接着剤が充填され且つ陰極ストラップ及び陽極ストラップが収容される複数個のポケット5を区割形成し、各ポケット5が位置する個所において、該ポケット5内に収容される陰極ストラップ及び陽極ストラップの長さ方向に対し直交し対面する中央仕切壁部3aと周側壁部2aを対面しない他の中央仕切壁部3b及び他の周側壁部2bより肉薄に形成する。



## 【特許請求の範囲】

【請求項1】 壩型電槽蓋の周側壁とその電槽蓋の裏面から突出し内部空間を仕切る中央仕切壁と該中央仕切壁に対し直交する横断仕切壁により、接着剤が充填され且つ陰極ストラップ及び陽極ストラップが収容される複数個のポケットを区劃形成し、各該ポケットが位置する個所において、該ポケット内に収容される陰極ストラップ及び陽極ストラップの長さ方向に対し直交する中央仕切壁部と周側壁部を、他の中央仕切壁部及び周側壁部より肉薄壁部にしたことを特徴とする接着式蓄電池用電槽蓋。

【請求項2】 請求項1に係る該筐型電槽蓋は、周側壁は、外周壁とその内周側面に一体の段壁とから成り、該中央仕切壁は、端面に接着剤を受容する凹溝を形成する底面壁と両側壁部とから成る電槽蓋において、各ポケットの存する位置において、該周側壁部は、該段壁部を欠いて外周壁のみの肉薄壁部に形成し、該中央仕切壁部は、該凹溝を形成する両側壁部を欠いて底面壁部のみの肉薄壁部に形成したことを特徴とする接着式蓄電池用電槽蓋。

【請求項3】 請求項1又は2に係る該筐型電槽蓋において、左右の対向するポケット間の中央仕切壁を除去したことを特徴とする接着式蓄電池用電槽蓋。

【請求項4】 電槽内を縦横に仕切る仕切壁により区劃された複数個のセル室内に夫々極板群をその両端の極板面と対向する内壁面にリブを介して収容し、且つ各極板群の陰極耳列と陽極耳列とをその最外端の耳を折り曲げることなくそのままCOS鑄型などにより陰極ストラップと陽極ストラップを形成し、且つ相隣る陰、陽極ストラップを中間接続して成る電池本体を逆さにし、各陰極ストラップ及び陽極ストラップを前記の請求項1、2又は3記載の電槽蓋の裏面の対応する各ポケット内に収容すると共に、各ポケット内に充填された接着剤に埋設固定して成る接着式蓄電池。

## 【発明の詳細な説明】

## 【0001】

【発明の属する技術分野】本発明は、主として鉛蓄電池に適用する接着式蓄電池用電槽蓋並びに接着式蓄電池に関する。

## 【0002】

【従来の技術】従来の接着式蓄電池の電槽の各セル室内に収容される極板群は、陰極板の枚数と陽極板の枚数は、そのいずれか一方が1枚多く、通常、陰極板の枚数が陽極板の枚数より1枚多く構成されている。従って、その極板群の上端面の左右に夫々並ぶ陽極耳列と陰極耳列の夫々の最外端間の枚数の距離は、通常、陰極耳間の方が長い。従って、これら夫々の耳列をCOS鑄型により夫々鋳造形成される陰極ストラップは陽極ストラップより長くなる。このような長手のストラップを筐型の電槽蓋の裏側に形成した各ポケット内に収容するためには、

各セル室において、これら陰、陽極ストラップの長さ方向に対し直交し極板群の両端の極板面と対面する内壁面に高く突出したリブが必要となる。その結果、そのストラップの長さ方向におけるセル室内のスペース幅は大きくなり、従って、それだけ電槽の寸法が大きくなり、これに伴いその上面に施される電槽蓋も大きくなり、蓄電池全体の寸法が大きくなる。

【0003】そこで、かかる欠点を改善するため、可及的にリブの高さを低くして電槽全体の寸法を小さくする

- 10 一方、枚数が1枚多い陰極板の耳列の最外端の両耳を内側に折り曲げて、最外端の耳間の距離を短くした状態でCOS鑄型により陰極ストラップを形成し、そのストラップの長さを短くして、これに応じて電槽蓋の裏側に設けるストラップを収容する各ポケット内のストラップの長さ方向におけるスペース幅を小さくして、全体として電池の寸法を小さくすることが提案されている。図8は、その提案の接着式蓄電池の極板群の陰、陽極ストラップの長さ方向に沿った横断面図、図9は、その電槽蓋の裏面図、図10は、図9示の該電槽蓋の一部の斜視図、図、図11は、裏面を上向きにし且つ接着剤を施され、接着式蓄電池を組み立てる際の電槽蓋の裏面図を示す。図8において、Aは接着式蓄電池、Bは直方形の電槽を示す。b1は該電槽Bの内部を幅方向において左右に仕切り長さ方向に延びる中央仕切壁、b2は該中央仕切壁に対し直交する横断の仕切壁、Cはこれらの仕切壁b1、b2、b2、…により区劃形成された複数個のセル室、この実施例では左右3個づつの6個のセル室、Dは各セル室C、C内に収容された極板群を示す。各該極板群Dは、陰極板N4枚と陽極板P3枚とを夫々袋状セパレータSを介して交互に且つその夫々の陰極耳nと陽極耳pが左右に並ぶように積層したもので、これを、各セル室C内にその積層方向において該極板群Dの両端極板面が対面する内面に平行して配設した少許突設した垂直リブR間に挟持して不動に収容したものである。而して、図8に明らかなように、陰極耳列n、n、n、…は、その最外端の耳n、nを内側に折り曲げて両端間の距離を短くしたもので、これら耳列をCOS鑄型により接続してその折り曲げた分だけ短い陰極ストラップNSを形成した。PSは、陽極耳列p、p、…を接続して形成した陽極ストラップを示す。このようにしてCOS鑄型により電槽B内の各相隣る極板群の陰、陽ストラップを形成すると同時にセル間接続して全体を直列に接続して電池本体を作製した後、常法により、該電池本体を逆さにして、裏面を上向きにして置かれた図9の筐型の合成樹脂製電槽蓋Eの上面に重合結着して接着式蓄電池を製造する。即ち、詳細には、電池本体側の夫々相互にセル間接続された陰陽極ストラップNS、PNを該電槽蓋Eの裏面に形成した夫々のポケットF、F、…内に、図11示のように予め各ポケットF、F、…内に充填され50 た接着剤G内に点線線のように埋設収容し、該接着剤G

の固化により固定する。この重合接着に当たり、その電池本体の電槽Bの周側壁b 3の当接用端縁と該中央仕切壁b 1及び該横断仕切壁b 2の端縁とを、対向する該電槽蓋Eの周側壁e 1とその幅方向の中央を仕切る仕切壁e 2とに当接接着せしめるため、その周側壁e 1を、外周壁e 1aとその内周側面に一体に突出した段壁e 1bとから成るものに形成し、その段壁e 1bの段面に接着剤Gを予め施し、また、その中央仕切壁e 2は底面壁e 2aとこれと一体の両側棹壁e 2bとから成る端面に凹溝Hを有するものに形成し、その凹溝Hに接着剤を予め施し、その後、これに電槽Bの上記の当接用端縁を当接接着して接着式蓄電池Aとしたものである。尚、各ポケットFは、該中央仕切壁b 1と該両側棹壁e 2bとの間を横断する各仕切壁e 2cと該中央仕切壁b 1と周側壁e 1とにより囲繞形成され、また、その各相隣るポケットF、F間には囲柵により排気室Iが形成されている。尚、一端のポケットFは、中央仕切壁b 1を欠き、幅方向に長いポケットFに形成されている。図面でJは、各排気室内に設けた安全弁を備えた排気筒K、Lは、極柱挿通孔を示す。PTは陽極端子、NTは陰極端子を示す。

#### 【0004】

【発明が解決しようとする課題】しかし乍ら、上記従来の接着式蓄電池では、最外端の陰極耳n、nを内側に折り曲げる作業が必要であり、煩わしいばかりか、その折り曲げにより、その内側のセパレータSの上端部は、その内側の陽極板Pの上端の角部に強く圧接されるため、その製造工程で或いは製造後、その部位で孔が開き、ショートすることがしばしば生じ、接着式蓄電池の製造ロスや使用寿命の短縮をもたらす不都合を伴った。一般に、特に、セパレータSとしては、強度の強いリテーナマットを使用するため、その不具合が発生し易いことが多い。そこで、上記の接着式蓄電池の電槽及び電槽蓋の外径寸法を拡大せずに、耳を折り曲げることなく、COS鑄型により形成した1枚多い陰極板の耳列又は陽極板の耳列をCOS鑄型により溶接したその最外端の耳間の寸法より長いストラップを、電槽蓋内のポケット内に収容し得られる接着式蓄電池の開発が望まれる。

#### 【0005】

【課題を解決するための手段】本発明は、上記の従来の課題を解決し、上記の要望を満足した接着式蓄電池用電槽を提供するもので、その請求項1に係る発明は、筐型電槽蓋の周側壁とその電槽蓋の裏面から突出し内部空間を仕切る中央仕切壁と該中央仕切壁に対し直交する横断仕切壁とにより、接着剤が充填され且つ陰極ストラップ及び陽極ストラップが収容される複数個のポケットを区割形成し、各該ポケットが位置する個所において、該ポケット内に収容される陰極ストラップ及び陽極ストラップの長さ方向に対し直交する中央仕切壁部と周側壁部を、その他の中央仕切壁部及び周側壁部より肉薄壁部に

したことを特徴とする。又、請求項2に係る発明は、請求項1に係る該筐型電槽蓋は、周側壁は、外周壁とその内周壁面に一体の段壁とから成り、該中央仕切壁は、端面に接着剤を受容する凹溝を形成する底面壁と両側棹壁とから成る電槽蓋において、各ポケットの存する位置において、該周側壁部は、該段壁部を欠いて外周壁のみの肉薄壁部に形成し、該中央仕切壁部は、該凹溝を形成する両側棹壁部を欠いて底面壁部のみの肉薄壁部に形成することを特徴とする。更に、請求項3に係る発明は、請求項1又は2に係る該筐型電槽蓋において、左右の対向するポケット間の中央仕切壁を除去することを特徴とする。更に、請求項4に係る発明は、接着式蓄電池を提供するもので、電槽内を縦横に仕切る仕切壁により区割された複数個のセル室内に夫々極板群をその両端の極板面と対向する内壁面にリブを介して収容し、且つ各極板群の陰極耳列と陽極耳列とをその最外端の耳を折り曲げることなくそのままCOS鑄型などにより陰極ストラップと陽極ストラップを形成し、且つ相隣る陰、陽極ストラップを中間接続して成る電池本体を逆さにし、その各陰極ストラップ及び陽極ストラップを前記の請求項1、2又は3記載の電槽蓋の裏面の対応する各ポケット内に収容すると共に、各ポケット内に充填された接着剤に埋設固定して成る。

#### 【0006】

【発明の実施の形態】次に、本発明の実施例を添付図面に基づいて詳述する。図1は、本発明の実施の1例の合成樹脂製電槽蓋1の裏面図、図2は、その一部を裁除した斜視図である。該電槽蓋1は、直方形の筐型から成り、周側壁2とその裏面から突出し内部空間を左右に仕切る中央仕切壁3と該中央仕切壁3に対し直交し、該中央仕切壁と該周側壁2との間に横断する仕切壁4とにより、接着剤が充填され且つ陰極ストラップ及び陽極ストラップが収容される複数個の方形のポケット5、実施例では左右に3つづつ、一端に中央仕切壁3を欠く幅方向に長い1つの合計7つのポケット5、5、…を区割形成した。尚、その配設された長さ方向において相隣るポケット5、5、…の間には、方形の排気室6、6、…を形成し、その各排気室6には排気筒7を設け、その外端には安全弁を具備する（図示しない）。他端の左右のポケット5、5、…の蓋頂板には、互いに極性を異にする極柱挿通孔8、9が穿設されている。以上の構成は、従来の電槽蓋の構成と変わりがない。

【0007】本発明によれば、該電槽蓋1の各ポケット5が位置する個所において、該ポケット5内に収容される陰極ストラップ及び陽極ストラップの長さ方向に対し直交し対面する中央仕切壁部3a及び周側壁部2aを対面しないその他の中央仕切壁部3b及び周側壁部2bよりも肉薄とすることを特徴とする。かくして、各ポケット5に収容されるストラップの長さ方向における幅Wが大きくなるので、後記に明らかにするように、最外端の

耳間に長い陰極耳列又は陽極耳列をその最外端の耳を内側に折り曲げることなく、そのままCOS鋳造により陰極又は陽極ストラップを鋳造し、これを各ポケット5内に収容することができる効果をもたらし、製造が迅速に且つ容易に行われ、セパレータの破れによる短絡のない良好な接着式蓄電池を製造することができる。

【0008】更に、上記の特徴構成を更に詳細に図示の実施例により説明する。該筐型電槽蓋1は、各ポケット5の陰極又は陽極ストラップを収容する長さ方向に対し直交し対面しない他の周側壁部2b及び中央仕切壁部3bは、夫々外周側壁部2b1とその内面に一体に突出し上面に接着剤を塗布する受面をもつ段壁部2b2とから成る肉厚壁部及び端面に接着剤を受容する凹溝10を形成する底面壁部3b1と両側枠壁部3b2, 3b2とから成る肉厚壁部に形成されるが、該ストラップに對し直交し対面する周側壁部2a及び中央仕切壁部3aは、夫々段壁部2b2を欠いた外側壁部2b1のみから成る肉薄壁部と両側枠壁部3b2, 3b2を欠いた底面壁部3b1のみから成る肉薄壁部とに形成されるので、夫々、上記の段壁部2b2及び両側枠壁部3b2, 3b2を欠く分だけ幅方向のスペース空間を生ずるので、各ポケット5内の陰、陽極ストラップの長さ方向の幅W、即ち、各ポケット5において電槽蓋1の幅方向におけるスペースWが増大する。従って、上記の効果をもたらす。

【0009】本発明によれば、上記のように構成した筐型電槽蓋1を常法により裏面を上向きにした状態で、図3及び図4示の電池本体11を逆さにして重合結着して、本発明の接着式蓄電池を構成する。即ち、該電池本体11は、図3及び図4示のように、直方形の電槽12とその周側壁12aの内部空間を左右に仕切り長さ方向に延びる中央仕切壁12bとこれと直交して幅方向に延びる横断仕切壁12cにより区割形成された6個のセル室13, 13, …内に夫々極板群14, 14, …を収容して成るものである。その各極板群14は、4枚の陰極板N, N, …と3枚の陽極板P, P, …をセパレータSを介して交互に且つその陰極耳n, n, …と陽極耳p, p, …を両側に夫々一列に並べた積層体で、その積層体の両端面をその各セル室13内にその電槽12の幅方向に向けて収容したもので、その各セル室13内のその積層体と対面する内壁面に、可及的に小さく内方へ突出する多数の平行する垂直リブ15, 15, …を配設し、該極板群14の両端面を該リブ15, 15, …を介して収容した。かくして、電槽12の周側壁12a及び仕切壁12a, 12bの上端縁より上方に突出して夫々のセルの陰極耳列n, n, …及び陽極耳列p, p, …が配設された電池本体が得られるが、本発明によれば、極板の枚数が1枚多い陰極耳列n, n, …の最外端の耳n, nを内側に折り曲げる処理工程を施すことなく、そのままCOS鋳型により陰極ストラップNS及び陽極ストラップ

PSを形成すると共に、全体が直列接続されるように相隣る陰、陽極ストラップNS, PSをセル間接続部16で互いに接続して一端に陰極柱17及び陽極柱18を具備した直列接続の電池本体11を製造する。かくして容易迅速に電池本体が得られる。

【0010】尚、図示の例では、陰極ストラップNSの長さと陽極ストラップPSの長さを同じ長さに形成したものを見た。これは、COS鋳型の陰極ストラップ鋳造用キャビティも陽極ストラップ鋳造用キャビティも同じ長さに構成でき、方向性を無視して鋳造が容易にでき、また、陽極端子と陰極端子を全く逆にした電池本体11を構成でき便利である。勿論、必要に応じ耳列の長さの短い陽極耳列の陽極ストラップの長さをこれに応じて短く形成できるCOS鋳型を用いても良いことは言うまでもない。

【0011】上記の本発明の電槽蓋1と電池本体11とを常法により重合結着して本発明の接着式蓄電池を構成する。即ち、図5示のように本発明の電槽蓋1をその裏面を上向きにした状態とし、その夫々のポケット5, 5, …内に所望量の接着剤Gを充填し、更に接着剤Gをその周側壁2の内側の段壁部2b2の段面及びその中央仕切壁3の上端面全長に亘り施した後、この電槽蓋1に上記の電池本体11を逆さにしてその周側壁及び仕切壁の端縁を電槽に重合結着する。かくするときは、図5示のようにその夫々の極板群の下向きの夫々の陰極ストラップNSと陽極ストラップPSをその各対応するポケット5内に挿入して、該接着剤に埋設し、該接着剤Gの固化により固定する。この該電池本体11と裏返しの電槽蓋1との重合結着作業において、同時に、その電槽12の周側壁12aは、該電槽蓋1の周側壁2の内側の各段壁部2b2に結着され、その中央仕切壁12bは、該電槽蓋1の中央仕切壁3に結着される。このように重合結着終了後、図6示のように正常位置とし、本発明の接着式蓄電池が得られる。図6は、本発明の接着式蓄電池を、左右にポケット5, 5, …が存する位置で、例えば、図5示のVI-VI線に添い横断した図である。該ポケット5のスペース幅Wは、上記のように拡大されているので、図示のように最外端の両耳を内側に折り曲げることなく真っ直ぐ上方に延びたままで、従って、従来より長手の陰極ストラップNS及びこれと同じ長さに形成された陽極ストラップPSが、夫々のポケット5, 5内に良好に収容せしめることができ、そのまゝ固着した状態のものが得られ、また、電槽蓋1の幅寸法を大きくする必要がない。

【0012】尚、上記の左右のポケット5, 5間を仕切る肉薄の中央仕切壁部3aの高さは肉厚の中央仕切壁部3bの凹溝10の底面と同じ高さとし、接着剤Gをこの高さまで充填することが一般的であるが、この肉薄の中央仕切壁部3aを欠除することもでき一層軽量で且つ幅方向のスペース空間を大きくすることができる。この場合

は、その仕切壁3aの除去部には接着剤を充填し、これにより左右のポケット5、5内に挿入された陰極ストラップNSと陽極ストラップPS間を電気絶縁するようしたり、その中央仕切壁3aがあつた中央位置まで延びるストラップを収容したりすることができる。

**【0013】** 図7は、上記の肉薄の中央仕切壁3a、3a、…を除去した電槽蓋1を用いた実施例を示し、その左右のポケット5、5内に収容される陰極ストラップNSを長手に形成する一方、その陽極ストラップPSを短く形成し、幅方向に並ぶ長手の陰極ストラップNSと短い陽極ストラップPSとの間に充填接着剤Gを充填し、これにより互いに絶縁したものを示し、その電池構成は更に簡単となり、安価に且つ軽量なものに得られる。また、中央仕切壁3aがないので、これに制約されずに、中央線を越えて幅方向に並ぶ陰極ストラップ又は陽極ストラップの長さを選択し、左右のポケット5、5内に収容できる。

#### 【0014】

**【発明の効果】** このように本発明によれば、筐型電槽蓋の裏面に形成した接着剤を充填し且つストラップを収容するための各ポケットが存する個所において、その収容されるストラップの長さ方向に対し直交し対面する周側壁部と中央仕切壁部の厚さを対面しない他の周側壁部と中央仕切壁部より肉薄にしたので、各ポケットのストラップの長さ方向におけるスペース幅が拡大された筐型電槽蓋を構成することができ、また、電池本体の電槽の各セル室に収容した極板群の上面に両側突出し整列した陰極耳列及び陽極耳列の最外端の耳を内側に折り曲げるとなしにCOS鋳型によりこれらを溶接した長手の陰極ストラップ又は陽極ストラップを前記電槽蓋の対応する上記のポケット内に収容することができ、電池のサイズを大きくすることなく容易且つ安価に長寿命の接着式蓄電池を得ることができる。また、中央仕切壁の肉薄壁部を欠除することにより、更に容易且つ安価で更に軽量な筐型電槽蓋並びに接着式蓄電池が得られる。

#### 【図面の簡単な説明】

**【図1】** 本発明の実施の1例の電槽蓋の裏面図。

**【図2】** 図1示の電槽蓋の一部の斜視図。

**【図3】** 電池本体の1側の平面図。

**【図4】** 図3示の電池本体のIV-I V線裁断面図。

**【図5】** 裏面を上向きにした該電槽蓋に電池本体を逆さにして重合結着した状態における接着式蓄電池の蓋の裏面図。

**【図6】** 図5示のIV-I V線で裁断し正常位置に置いた状態の断面図。

**【図7】** 本発明の他の実施例の図5に類似の状態を示す接着式蓄電池の蓋の裏面図。

**【図8】** 従来の接着式蓄電池の横断面図。

**【図9】** 図8示の接着式蓄電池の電槽蓋の裏面図。

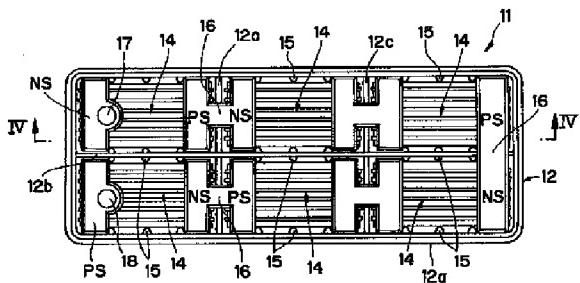
**【図10】** 図9示の電槽蓋の一部の斜視図。

**【図11】** 該電槽蓋のポケット内に陰、陽極ストラップを収容し、充填接着剤に埋設固定した状態を示す接着式蓄電池の蓋の裏面図。

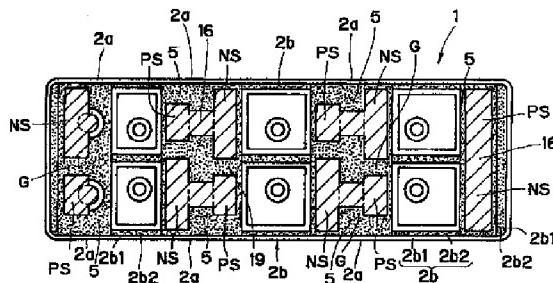
#### 【符号の説明】

|                  |              |
|------------------|--------------|
| 1 筐型電槽蓋          | 2 周側壁        |
| 2a 肉薄の周側壁部       | 2b 肉厚の周側壁部   |
| 2b 1 外周側壁部       | 2b 2 段壁部     |
| 3 中央仕切壁          | 3a 肉薄の中央仕切壁部 |
| 3b 肉厚の中央仕切壁部     | 3b 1 底面壁部    |
| 3b 2, 3b 2 両側枠壁部 | 4 横断仕切壁      |
| 5 ポケット           | 8 極柱挿通孔      |
| 9 極柱挿通孔          | 10 凹溝        |
| W スペース、スペース幅     | 11 電池本体      |
| 12 電槽            | 12a 周側壁      |
| 12b 中央仕切壁        | 12c 横断仕切壁    |
| 13 セル室           | 14 極板群       |
| N 陰極板            | n 陰極板の耳      |
| P 陽極板            | P 陽極版の耳      |
| S セパレータ          | 15 垂直リブ      |
| 16 セル間接続部        | PN 陰極ストラップ   |
| PS 陽極ストラップ       | G 接着剤        |

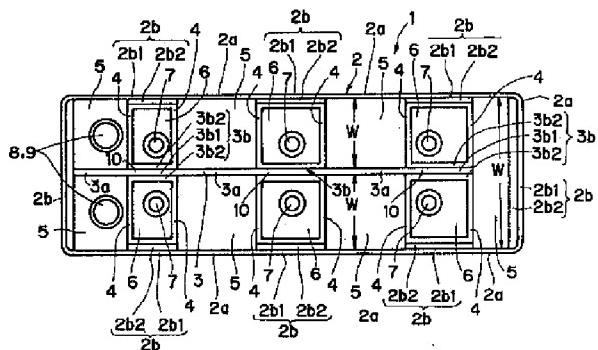
【図3】



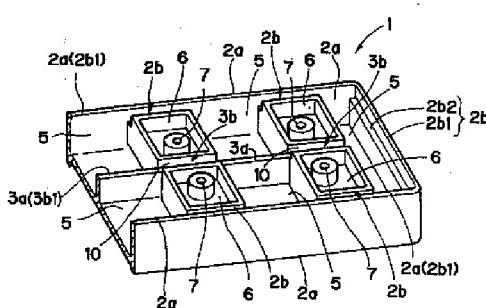
【図7】



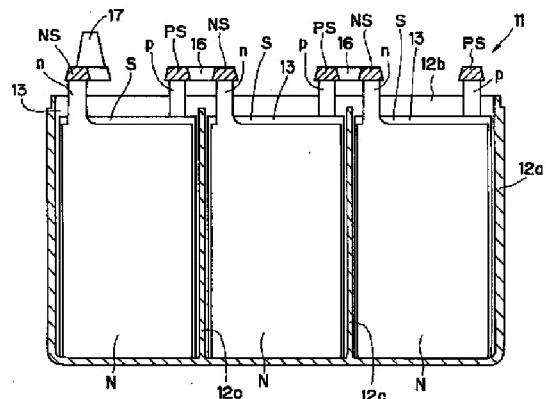
【図1】



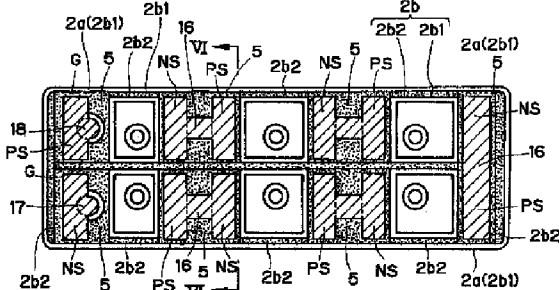
【図2】



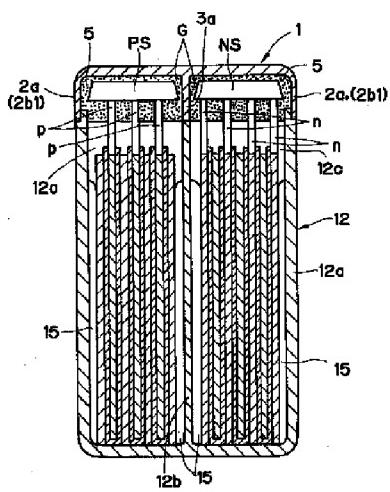
【図4】



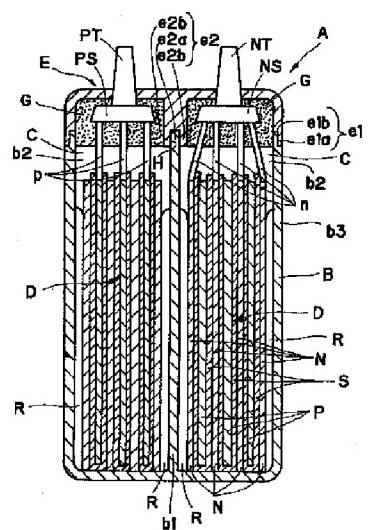
【図5】



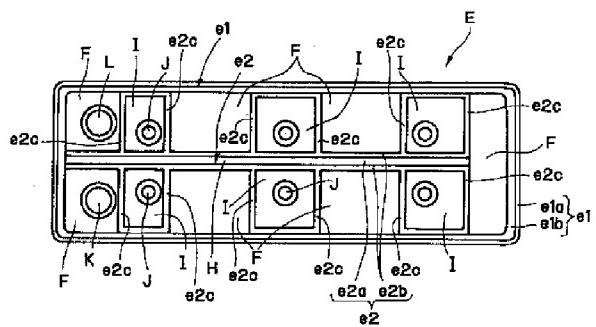
【図6】



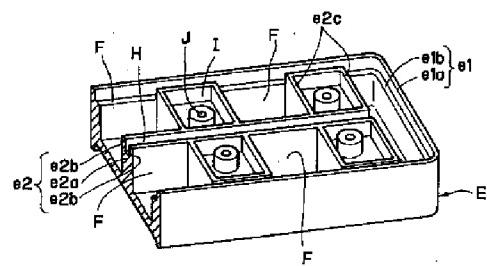
【図8】



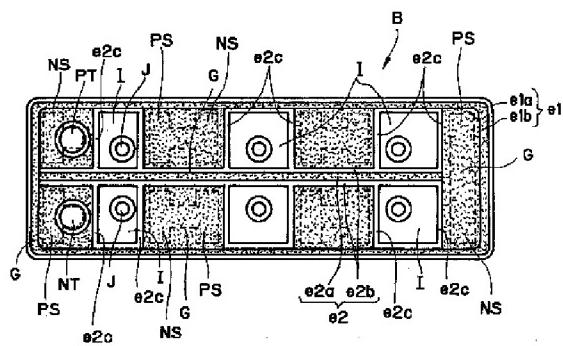
【図9】



【図10】



【図11】



**\* NOTICES \***

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- 2.\*\*\*\* shows the word which can not be translated.
- 3.In the drawings, any words are not translated.

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**DETAILED DESCRIPTION**

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**[Detailed Description of the Invention]****[0001]**

[Field of the Invention]This invention relates to the battery container cover for adhesion type storage batteries and adhesion type storage battery which are applied mainly to a lead storage battery.

**[0002]**

[Description of the Prior Art]As for the group of electrode accommodated in each cell room of the battery case of the conventional adhesion type storage battery, the number of sheets of a cathode plate and the number of sheets of a positive plate have many one of the one sheets, and many one number of sheets of a cathode plate usually comprises number of positive plates. Therefore, the distance of the number of sheets between each outermost edge of anode \*\*\*\*, respectively on a par with the right and left of the upper bed side of the group of electrode and negative pole \*\*\*\* is usually longer between negative pole ears. Therefore, the negative electrode straps by which casting formation is carried out with a COS mold in each \*\*\*\* of these, respectively become longer than positive electrode straps. In order to accommodate the strap of such the straight side in each pocket formed in the back side of a \*\* type battery container cover, in each cell room, the rib projected highly is needed for the internal surface which intersects perpendicularly to these shades and the length direction of positive electrode straps, and meets the polar-plate side of the both ends of a group of electrode. As a result, the space width in the cell room in the length direction of the strap becomes large, therefore so much, the size of a battery case becomes large, the battery container cover given to the upper surface in connection with this also becomes large, and the size of the whole storage battery becomes large.

[0003]Then, in order to improve a \*\*\*\*\* fault, while making the height of a rib low as much as possible and making the size of the whole battery case small, Bend both the ears of the

outermost edge of \*\*\*\* of a cathode plate with much one number of sheets inside, where distance between the ears of an outermost edge is shortened, form negative electrode straps with a COS mold, and the length of the strap is shortened, Making small space width in the length direction of the strap in each pocket which accommodates the strap provided in the back side of a battery container cover according to this, and making the size of a cell small as a whole is proposed. The cross-sectional view in which drawing 8 met in the shade of the group of electrode of the adhesion type storage battery of the proposal and the length direction of positive electrode straps, and drawing 9, The back view of the battery container cover and drawing 10 are made into some perspective views of this battery container cover of \*\*9\*\*, and drawing 11 turns a rear face upward, and adhesives are given, and the back view of the battery container cover at the time of assembling an adhesion type storage battery is shown. In drawing 8, A shows an adhesion type storage battery and B shows the battery case of the Naokata form. The central bridge wall which b1 divides the inside of this battery case B into right and left in the cross direction, and is prolonged in the length direction, In the bridge wall of crossing in which b2 intersects perpendicularly to this central bridge wall, two or more cell rooms where division formation of the C was carried out by these bridge walls b1, b2, b2, and --, and this example, six cell rooms of every three right and left and D show the group of electrode accommodated in each cell room C and C. this each group of electrode D passes the saccate separator S for cathode plate N4 sheet and positive plate P3 sheet, respectively -- alternation -- and it being what was laminated so that each of the negative pole ear n and anode ear p might be located in a line with right and left, and, It pinches between the vertical ribs R which allocated this in each cell room C in parallel with the inner surface which the both-ends polar-plate side of this group of electrode D meets in the laminating direction and which few-\*\*\*\*\*<sup>(ed)</sup>, and accommodates in immobilization. It \*\*<sup>(ed)</sup>, and it is what bent the ears n and n of the outermost edge inside, and shortened distance between both ends, and negative pole \*\*\*\*n, n, and n and -- connected these \*\*\*\* with the COS mold, and formed the negative electrode straps NS only with the short part to have bent so that clearly [ drawing 8 ]. PS shows the positive electrode straps which connected and formed anode \*\*\*\*p and p and --. thus, a COS mold -- the shade of each adjacency \*\*\*\*\* in the battery case B, and the sun -- with a conventional method, after connecting between cells, connecting the whole in series and producing a cell proper at the same time it forms a strap. Polymerization binding is carried out at the upper surface of the \*\* type battery container cover E made of a synthetic resin of drawing 9 which made this cell proper reverse, turned the rear face upward, and was placed, and an adhesion type storage battery is manufactured. Namely, in each pocket F and F for which the yin-and-yang pole straps NS and PN by the side of a cell proper mutually connected between cells, respectively were formed in the rear face of this battery container cover E in detail, and --, In the adhesives G with which it filled up in each pockets F and F and --

beforehand like \*\*11\*\*, burial accommodation is carried out like \*\*\*\*\* and it fixes by solidification of these adhesives G. In this polymerization binding, the edge of the edge for contact of the peripheral side wall b3 of the battery case B of that cell proper, this central bridge wall b1, and this crossing bridge wall b2, In order that the peripheral side wall e1 of this battery container cover E that counters, and the bridge wall e2 which divides the center of the cross direction may carry out contact adhesion, The peripheral side wall e1 is formed in what comprises the peripheral wall e1a and the stage wall e1b projected to the inner circumferential side at one, Giving [ and ] the adhesives G beforehand to the stepped surface of the stage wall e1b, the central bridge wall e2 is formed in the end face which comprises the bottom wall e2a, this, and both-sides frame wall e2b of one what has the concave H, and gives adhesives beforehand to the concave H.

Without after that, contact adhesion of the above-mentioned edge for contact of the battery case B is carried out, and it is considered as the adhesion type storage battery A.

Surrounding formation of each pocket F is carried out by each bridge wall e2c and this central bridge wall b1 which cross between this central bridge wall b1 and these both-sides frame wall e2bs, and the peripheral side wall e1, and the exhaust room I is formed by the surrounding frame among each of those \*\*\*\*\* pockets F and F. The pocket F of an end lacks the central bridge wall b1, and is formed crosswise in the long pocket F. The flue connector provided with the safety valve which provided J in each exhaust room with the drawing, K, and L show a pole pillar insertion hole. PT shows an anode terminal and NT shows a cathode terminal.

#### [0004]

[Problem(s) to be Solved by the Invention]However, in \*\* et al. and the above-mentioned conventional adhesion type storage battery, the work which bends the negative pole ears n and n of an outermost edge inside is required, and by it being not only troublesome but its bending. Since the upper bed part of the separator S of the inside was strongly welded by pressure to the corner of the upper bed of the positive plate P of the inside, it is the manufacturing process, or that a hole opens and short-circuits by the part often arose after manufacture, and it was accompanied by the inconvenience which brings about the manufacture loss of an adhesion type storage battery, and shortening of a use life. In order to use a retainer mat with strong intensity general especially as the separator S, it is easy to generate the fault in many cases. Then, without expanding the battery case of the above-mentioned adhesion type storage battery, and the outside diameter size of a battery container cover, Development of the adhesion type storage battery which may be accommodated in the pocket in a battery container cover is desired in a strap longer than the size between the ears of the outermost edge which welded \*\*\*\* of a cathode plate with many one sheet or \*\*\*\* of a positive plate formed with the COS mold with the COS mold, without bending an ear.

#### [0005]

[Means for Solving the Problem] An invention which this invention solves the above-mentioned conventional technical problem, provides a battery case for adhesion type storage batteries which satisfied the above-mentioned request, and relates to the claim 1, With a crossing bridge wall which intersects perpendicularly to a central bridge wall and this central bridge wall which project from a peripheral side wall and a rear face of a battery container cover of a \*\* type battery container cover, and divide a building envelope. In a part in which division formation of two or more pockets which are filled up with adhesives and, in which negative electrode straps and positive electrode straps are accommodated is carried out, and this each pocket is located, A central bridge wall part and a peripheral side wall part which intersect perpendicularly to the length direction of negative electrode straps and positive electrode straps which are accommodated in this pocket were made into a closing-in wall from other central bridge wall parts and peripheral side wall parts. This \*\* type battery container cover that an invention concerning claim 2 requires for claim 1, A peripheral side wall changes from a stage wall of one to a peripheral wall and its internal peripheral wall surface, and this central bridge wall, In a battery container cover which comprises a bottom wall which forms in the end face a concave which receives adhesives, and each-side-walls frame, in a position in which each pocket consists, this peripheral side wall part, This stage wall was lacked and it formed in a closing-in wall of only a peripheral wall, and this central bridge wall part lacked each-side-walls part which forms this concave, and formed it in a closing-in wall of only a bottom wall part. In this \*\* type battery container cover concerning claim 1 or 2, an invention concerning claim 3 removed a central bridge wall between pockets which right and left counter. An invention concerning claim 4 provides an adhesion type storage battery, and a group of electrode is accommodated via a rib at a polar-plate side of the both ends, and an internal surface which counters, respectively in two or more cell rooms divided with a bridge wall which divides inside of a battery case in all directions, And negative electrode straps and positive electrode straps are formed with the \*\*\*\* COS mold, without bending an ear of the outermost edge for negative pole \*\*\*\* and anode \*\*\*\* of each group of electrode, And a cell proper which carries out intermediate connection of adjacency \*\*\*\* and the positive electrode straps is made reverse, the each negative electrode straps and positive electrode straps are accommodated in each pocket to which a rear face of the aforementioned battery container cover according to claim 1, 2, or 3 corresponds, and burial immobilization is carried out at adhesives with which it filled up in each pocket.

[0006]

[Embodiment of the Invention] Next, the example of this invention is explained in full detail based on an accompanying drawing. It is the perspective view in which drawing 1 \*\*\*\*(ed) the back view of the battery container cover 1 made of a synthetic resin of one example of operation of this invention, and drawing 2 \*\*\*\*(ed) the part. With the bridge wall 4 which this

battery container cover 1 comprises the \*\* type of the Naokata form, intersects perpendicularly to the central bridge wall 3 and this central bridge wall 3 which project from the peripheral side wall 2 and its rear face, and divide a building envelope into right and left, and crosses between this central bridge wall and these peripheral side walls 2. Division formation of the pocket 5 of two or more rectangles which are filled up with adhesives and in which negative electrode straps and positive electrode straps are accommodated, one pockets [ a total of seven ] 5 and 5 long to the cross direction which lacks three at a time right and left, and lacks the central bridge wall 3 at the end in the example, and -- was carried out. In the allocated length direction, the rectangular exhaust rooms 6 and 6 and -- are formed between the \*\*\*\*\* pockets 5 and 5 and --, the flue connector 7 is formed in each of that exhaust room 6, and a safety valve is provided in the outer edge (not shown). The pockets 5 and 5 of the right and left of the other end and the pole pillar insertion holes 8 and 9 of -- which differ in polarity mutually in lid top plating are drilled. The above composition does not have composition and a change of the conventional battery container cover.

[0007]In the part in which each pocket 5 of this battery container cover 1 is located according to this invention, The central bridge wall part 3a and the peripheral side wall part 2a which intersect perpendicularly and meet to the length direction of the negative electrode straps and positive electrode straps which are accommodated in this pocket 5 are considered as closing in rather than the other central bridge wall parts 3b and peripheral side wall part 2bs which do not meet. Since the width W in the length direction of the strap accommodated in each pocket 5 becomes large in this way, Negative pole \*\*\*\* with between [ long ] the ears of an outermost edge, or anode \*\*\*\*, without bending the ear of the outermost edge inside so that it may be made clear to a postscript, COS casting casts the negative pole or positive electrode straps by the \*\*\*\*, the effect that this can be accommodated in each pocket 5 is brought about, manufacture is performed promptly and easily, and it is based on the tear of a separator -- simplistic -- the good adhesion type storage battery which is not can be manufactured.

[0008]The example of a graphic display explains the above-mentioned feature composition still in detail. Other peripheral side wall part 2bs and the central bridge wall parts 3b which do not intersect perpendicularly and meet to the length direction which accommodates the negative pole or positive electrode straps of each pocket 5 this \*\* type battery container cover 1, Although formed in the bottom wall part three b1 which forms the concave 10 which receives adhesives in the thick wall and the end face which comprise stage wall 2b2 with the abutment which projects to periphery side wall part 2b1 and its inner surface at one, and applies adhesives to the upper surface, respectively, the both-sides frame wall part three b2, and the thick wall which comprises three b2, Intersect perpendicularly to this strap and the peripheral side wall part 2a and the central bridge wall part 3a which meet, Since it is formed in the closing-in wall which comprises only paries-lateralis-orbitae part 2b1 which lacked stage wall

2b2, respectively, and the closing-in wall which comprises only the both-sides frame wall part three b2 and the bottom wall part three b1 lacking in three b2, Since only above-mentioned stage wall 2b2 and the both-sides frame wall part three b2, and the part lacking in three b2 produce crosswise space space, respectively, in the width W 5, i.e., each pocket, of the shade in each pocket 5, and the length direction of positive electrode straps, the space W in the cross direction of the battery container cover 1 increases. Therefore, the above-mentioned effect is brought about.

[0009]According to this invention, drawing 3 and the cell proper 11 of \*\*4\*\* are made reverse, polymerization binding is carried out, and the adhesion type storage battery of this invention consists of states where the rear face was turned for the \*\* type battery container cover 1 constituted as mentioned above upward with the conventional method. Namely, this cell proper 11 like drawing 3 and \*\*4\*\*, The groups of electrode 14 and 14 and -- are accommodated, respectively in the six cell rooms 13 and 13 by which division formation was carried out with the crossing bridge wall 12c which intersects perpendicularly with the central bridge wall 12b and this which divide the battery case 12 and the building envelope of the peripheral side wall 12a of the Naokata form into right and left, and are prolonged in the length direction, and is prolonged crosswise, and --. each of that group of electrode 14 passes the separator S for the positive plates P and P of three sheets, and -- with the cathode plates N and N of four sheets, and -- alternation -- and it being the layered product which compared the anode ears p and p and -- with the negative pole ears n and n and -- on both sides at the single tier, respectively, and, It is what turned the both-ends side of the layered product crosswise [ of the battery case 12 ], and accommodated it in each of that cell room 13, The vertical ribs 15 and 15 and -- to which a large number which project to an inner direction small as much as possible are parallel were allocated in the internal surface which meets the layered product in each of that cell room 13, and the both-ends side of this group of electrode 14 was accommodated in it via these ribs 15 and 15 and --. Although the cell proper in which it projected up and negative pole \*\*\*\*n and n of each cell, -- and anode \*\*\*\*p and p, and -- were allocated in this way from the peripheral side wall 12a of the battery case 12 and the upper bed edge of the bridge walls 12a and 12b is obtained, According to this invention, form the negative electrode straps NS and positive-electrode-straps PS with the \*\*\*\* COS mold, without giving down stream processing of negative pole \*\*\*\*n and n with much one number of sheets of a polar plate, and -- which bends the ears n and n of an outermost edge inside, and. The cell proper 11 of the series connection which connected mutually adjacency \*\*\*\*, positive-electrode-straps NS, and PS in the terminal area 16 between cells, and possesses the negative pole pillar 17 and the anode pillar 18 at the end so that the series connection of the whole may be carried out is manufactured. A cell proper is obtained easily promptly in this way.

[0010]The example of the graphic display showed what formed the length of the negative

electrode straps NS, and the length of positive-electrode-straps PS in the same length. This can constitute the cell proper 11 which the cavity for negative-electrode-straps casting of a COS mold and the cavity for positive-electrode-straps casting could be constituted to the same length, directivity was disregarded, and casting was completed easily, and completely made the anode terminal and the cathode terminal reverse, and is convenient. Of course, it cannot be overemphasized that the COS mold which can form short the length of the positive electrode straps of anode \*\*\*\* with short ear queue length according to this if needed may be used.

[0011]Polymerization binding of the above-mentioned battery container cover 1 and the cell proper 11 of this invention is carried out with a conventional method, and the adhesion type storage battery of this invention is constituted. Namely, the battery container cover 1 of this invention is changed like \*\*5\*\* into the state where the rear face was turned upward, After being filled up with the adhesives G of desired quantity in each of the pocket 5 and 5 and --, and also covering the upper bed side overall length of the stepped surface of stage wall 2b2 inside the peripheral side wall 2, and its central bridge wall 3 and giving the adhesives G, The above-mentioned cell proper 11 is made reverse this battery container cover 1, and polymerization binding of the edge of that peripheral side wall and a bridge wall is carried out at a battery case. it writes -- when carrying out, each downward negative electrode straps NS and positive-electrode-straps PS of each of the group of electrode are inserted into that each corresponding pocket 5 like \*\*5\*\*, and it lays under these adhesives, and fixes by solidification of these adhesives G. In polymerization binding work with this this cell proper 11 and the inside-out battery container cover 1, simultaneously, the peripheral side wall 12a of that battery case 12 is bound to each stage wall 2b2 inside the peripheral side wall 2 of this battery container cover 1, and that central bridge wall 12b is bound to the central bridge wall 3 of this battery container cover 1. Thus, it is considered as the normal position like \*\*6\*\* after the end of polymerization binding, and the adhesion type storage battery of this invention is obtained. Drawing 6 is the figure which was a position to which the pockets 5 and 5 and -- consist in right and left, accompanied the VI-VI line of \*\*5\*\*, for example, and crossed the adhesion type storage battery of this invention. Since space width W of this pocket 5 is expanded as mentioned above, By \*\*\*\* prolonged in the straight upper part without bending both the ears of an outermost edge inside like a graphic display. Therefore, positive-electrode-straps PS formed in the negative electrode straps NS of the straight side and the same length as this from before can make it accommodate good in each pocket 5 and 5, and the thing in the state where \*\*\*\* adherence was carried out is obtained, and it is not necessary to enlarge the width dimension of the battery container cover 1.

[0012]Although it is general to make into the same height as the bottom of the concave 10 of the thick central bridge wall part 3b the height of the central bridge wall part 3a of closing in

which divides between the pockets 5 and 5 of above right and left, and to be filled up with the adhesives G to this height, The central bridge wall part 3a of this closing in can also be removed, it is much more lightweight and crosswise space space can be enlarged. In this case, are made to carry out electric insulation of between positive-electrode-straps PS to the negative electrode straps NS which filled up the removing part of that bridge wall 3a with adhesives, and were inserted into the pocket 5 and 5 on either side by this, or. The strap prolonged to the middle position with the central bridge wall 3a can be accommodated.

[0013]Drawing 7 shows the central bridge walls 3a and 3a of the above-mentioned closing in, and the example using the battery container cover 1 which removed --, While forming in the straight side the negative electrode straps NS accommodated in the pocket 5 and 5 of the right and left, The positive-electrode-straps PS is formed short, it is filled up with the restoration adhesives G between the negative electrode straps NS of the straight side located crosswise in a line, and short positive-electrode-straps PS, and what insulated mutually by this is shown, and the battery construction becomes still easier and is obtained by the cheap and lightweight thing. Since there is no central bridge wall 3a, the length of the negative electrode straps or positive electrode straps located crosswise in a line across Chuo Line is chosen without being restrained by this, and it can accommodate in the pocket 5 and 5 on either side.

[0014]

[Effect of the Invention]Thus, in the part where each pocket for according to this invention being filled up with the adhesives formed in the rear face of a \*\* type battery container cover, and accommodating a strap consists, Intersect perpendicularly to the length direction of the strap accommodated, and since thickness of the peripheral side wall part which meets, and a central bridge wall part was made closing in from other peripheral side wall parts and central bridge wall parts which do not meet, The \*\* type battery container cover to which the space width in the length direction of the strap of each pocket was expanded can be constituted, .Without bending the ear of the outermost edge of negative pole \*\*\*\* which carried out both-sides projection alignment, and anode \*\*\*\* inside on the upper surface of the group of electrode accommodated in each cell room of the battery case of a cell proper with a COS mold. The negative electrode straps or positive electrode straps of the straight side which welded these can be accommodated in the above-mentioned pocket to which said battery container cover is equivalent, and an easy and cheaply long lasting adhesion type storage battery can be obtained, without enlarging size of a cell. A \*\* type battery container cover still easier and cheap, and still lighter-weight and an adhesion type storage battery are obtained by removing the closing-in wall of a central bridge wall.

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[Translation done.]